

## TO STUDY THE AETIOPATHOGENESIS OF MADHUMEHA AND TO EVALUATE THE EFFICACY OF TRIPHALADI KWATHA

Pallavi Bhushan<sup>1</sup> Dalip Sharma<sup>2</sup> Akhilesh Srivastava<sup>3</sup>

P.G.Scholar, Dept of Rog Nidan,<sup>2</sup>Reader and Head,<sup>3</sup>Sr. Lecturer,  
RGGPG Ayurvedic College, Paprola, Himachal Pradesh, India

### ABSTRACT

*Madhumeha* which is a type of *Prameha* is characterized by passage of excessive quantity of urine which usually resembles honey in taste and colour. The main causative factor is *Vata* which is either vitiated directly its causative factors or by the *Avarana* of *Kapha* and *Pitta* to its path, that is why *Madhumeha* has been classified by *Acharya Vagbhata* into two categories viz. *Dhatu Kshaya-Janya* and *Avarana Janya Madhumeha*, the former type is the result of provocation of *Vata* by continuous use of factors causing *Aptarpana* and is *Asadhya*; therefore no specific treatment has been mentioned for it. *Avarana janya Madhumeha* on the other hand is produced due to vitiation of *Kapha* and *Pitta* by factors leading to *Santarpana*, this type of *Madhumeha* is said to be *Krichha Sadhya* and is curable by extensive treatment. There are two types of diabetes mellitus viz. type-1 and type-2. Type-1 diabetics are asthenic in body constitution and suffer from the disease in early years of life, this type of diabetes mellitus may be correlated with *Dhatu Kshaya Janya Madhumeha*. Type-2 patients are mostly obese and suffer from it, in their forties and these can be managed by diet and exercises, this resembles to *Avarana Janya Madhumeha*. The present clinical trial was, conducted to clinically assess the efficacy of *Triphaladi Kwatha* in the management of *Madhumeha*. Total 60 patients were selected from the O.P.Ds. of R.G.G.P.G. Ayurvedic College & Hospital; Paprola (H.P.), out of which 46 patients completed the trial and the rest were excluded.

**Keywords:** *Madhumeha, Triphaladi Kwatha*

### INTRODUCTION

The present era is full of chaos, stress & strain due to life style modifications, change in dietary habits, urbanization and industrialization. This has led to the upsurge of many diseases and one among them is *Madhumeha*. Globally, the number of diabetic patients has risen sharply. By 2030, an estimated 435 million people are expected to suffer from this disease (7.8% of the total adult population)<sup>1</sup>. As per IDF (International Diabetes Federation) the disease will prove costly for In-

dia, both in terms of lives lost and money wasted. In India, it will kill around 10.07 lakhs people in the age group of 20-79 years every year, the majority being women (5.81 lakhs) from 2010<sup>2</sup>.

Diabetes mellitus is a metabolic disorder of carbohydrate, fat & protein characterized by hyperglycemia with or without glycosuria and this occurs due to relative or absolute deficiency of insulin. *Madhumeha* has been classified under the *Vattika* type of *Prameha*. The *Vata* may be

provoked directly by its etiological factors, by *Avarana* of *Kapha* and *Pitta* or by continuous depletion of *Dhatu*.<sup>3</sup> Vagbhata has classified *Madhumeha* into two categories viz. *Dhatukshayajanya Madhumeha* and *Avaranajanya Madhumeha*. The factors which provoke *vata* directly cause *Dhatukshayajanya* or *Apatarpanajanya Madhumeha* while the factors which provoke *kapha* and *pitta* causes *Avaranajanya* or *Santarpanajanya Madhumeha*.<sup>4</sup> In *Apatarpanajanya Madhumeha* patients are usually asthene and are equivalent to Type I Diabetes mellitus, while in *Santarpanajanya Madhumeha* patients are obese equivalent to Type II Diabetes mellitus.

#### Drug Selection:

In the present study a protocol was made to manage *Madhumeha* by using herbal compound. *Triphaladi Kwatha* described by *Acharya Chakrapani* was selected which consists of: *Triphala (haritaki, bibhitaki and amalaki)*, *Devdaru*, *Daruharidra* and *Musta*.<sup>5</sup>

*Triphala* as a whole or separately is effective in diabetes. *Amalaki* is an immuno-modulator and have anti hyperglycemic effect, so it may be useful in autoimmune diabetes mellitus. Similar effects of *Daruharidra* & *Devdaru* have been observed by other researchers also. Over and above *Musta* have hypoglycaemic, hypolipidemic and tranquilizing effects<sup>6</sup>.

#### AIMS AND OBJECTIVES –

1. To review the *Ayurvedic* & modern literature related to *Madhumeha*.
2. To study the aetiopathogenesis of *Madhumeha*.
3. To study the efficacy of *Triphaladi Kwatha* in the management of *Madhumeha*.

#### MATERIALS AND METHODS

##### Selection of Patients

A total of 60 patients were registered for the present clinical study from the

O.P.Ds of Rajiv Gandhi Govt. Post Graduate Ayurvedic College and Hospital, Pa-prola, out of which 46 patients completed the clinical trial, patients were thoroughly assessed on various subjective and objective parameters after every 10 days till the completion of trial i.e. 30 days, a scoring system was adopted to assess the effect of therapy on different parameters of *Madhumeha*.

##### Inclusion Criteria:-

In the present clinical trial only those patients of *Madhumeha* were selected who full filled the inclusion criteria as mentioned below:-

1. Patients willing to participate in the trial.
2. Age between 35-80 years irrespective of sex, caste & religion.
3. Only uncomplicated cases of Non Insulin Dependent Diabetes Mellitus.
4. Patients with Fasting Blood Sugar >126mg/dl.

##### Exclusion Criteria:-

1. Patients presenting with complications like severe renal disease, retinopathy, ischemic heart disease, severe hypertension etc.
2. Insulin Dependent Diabetes Mellitus.
3. Patients associated with major medical diseases like cancer, concurrent infection like tuberculosis etc.
4. Pregnant women.

##### *Triphaladi Kwatha* was given with *Madhu* (Honey)

- ❖ **Dosage** - 40 ml. twice daily.
- ❖ **Duration** - 30 days
- ❖ **Follow up** - Three follow ups each after every 10 days of treatment

##### Criteria for Assessment:

Grading and scoring system was adopted for assessing each clinical feature before the commencement of trial and after completion of trial. The results were assessed

in respect of improvement in clinical signs and symptoms (on the basis of grading and scoring system) and the laboratory profiles (grading of F.B.S & P.P. blood sugar level). The obtained data on the basis of observations were subjected to statistical analysis. Students paired t - test was used to calculate the significance of data, difference were considered to be significant if  $p < 0.05$ .

### OBSERVATIONS AND RESULTS:

In present study, it was revealed that the incidence of *Madhumeha* was significantly higher i.e. 39.13% in the age group of 50-59 years, 56.52% were females, 97.82% were Hindus, majority of the patients i.e. 43.47% were in service, 41.30% belonged to middle socioeconomic status, most of the patients i.e. 78.26% were on mixed diet, addiction of tea/coffee was found in 45.65% of patients. The incidence of the disease was more i.e. 43.47% in patients with *Vata Kaphaja Prakriti*, all the patients were married, maximum i.e. 86.95% belonged to rural area and 26.08%

each were either primary educated or has completed matriculation.

34.78% of the patients either had the disease for less than one year or between 1-5 years, majority of the patients i.e. 52.17% had no family history, the blood pressure of maximum patients i.e. 45.65% was normal, 73.91% had increased appetite, bowel habit was found to be constipated in 50.00%, 65.21% patients were not doing any type of exercises and 45.65% of patients were either taking allopathic or no treatment at all.

### INCIDENCE OF VARIOUS SIGNS AND SYMPTOMS

In the present clinical trial fatigue was observed in maximum i.e. 86.95% patients, polyuria and polydipsia each in 84.78% patients, calf tenderness in 82.60%, weakness in 76.08%, polyphagia in 73.91%, *ruchi* in 65.96%, numbness in 63.04%, urine turbidity & joint pain each were observed in 60.86%, perspiration & increased sleep each in 56.52%, dyspnoea in 54.34%, constipation in 50.00% and loss of libido in 28.26% patients.

S. No	Signs/Symptoms	n	Mean		Diff.	% relief	± SD	±S E	T	P
			BT	AT						
1.	<i>Prabhuta Mutrata</i> (polyuria)	39	1.83	0.61	1.22	66.66	0.72	0.11	11.3	<0.001
2.	<i>Pipasa</i> (polydipsia)	39	1.76	0.76	1.00	56.81	0.63	0.09	10.7	<0.001
3.	<i>Kshudha adhikya</i> (polyphagia)	34	1.50	0.54	0.96	64.00	0.69	0.10	9.29	<0.001
4.	<i>Avila mutrata</i> (turbidity)	28	0.85	0.23	0.62	72.94	0.64	0.09	6.36	<0.001
5.	<i>Karpada Suptata</i> (Numbness)	29	0.87	0.72	0.15	17.24	0.36	0.05	2.84	<0.005
6.	<i>Svedaadhikya</i> (Perspiration)	26	0.89	0.67	0.22	24.71	0.46	0.7	3.15	<0.005
7.	<i>Daurbalya</i> (Weakness)	35	1.26	0.30	0.96	76.19	0.72	0.11	8.89	<0.001
8.	<i>Alasya</i> (general debility)	40	1.48	0.61	0.87	58.78	0.54	0.08	10.88	<0.001
9.	<i>Sandhi Shoola</i>	28	1.09	0.35	0.74	67.88	0.74	0.11	6.74	<0.001

	(joint pains)									
10.	<i>Shrama Shwasa</i> (dyspnoea)	25	0.91	0.63	0.28	30.76	0.45	0.07	4.2	<0.001
11.	<i>Nidradhikya</i> (Sleep)	26	0.80	0.32	0.48	60	0.50	0.07	6.4	<0.001
12.	<i>Ruchi</i>	32	1.06	0.72	0.34	32.07	0.48	0.07	4.8	<0.001
13.	<i>Poorishbadhdhta</i> (Constipation)	23	0.85	0.13	0.72	84.70	0.80	0.12	6.02	<0.001
14.	<i>Loss of Libido</i>	13	0.39	0.26	0.13	33.33	0.34	0.05	2.59	<0.005
15.	<i>Pindiko Udveshtana</i> (calf tenderness)	38	1.39	0.52	0.87	62.58	0.61	0.09	9.53	<0.001

**Effects on clinical features-**The percentage relief in *Poori-shbadhdhta* was highest which was 84.70% followed by *daurbalya*, *avila mutrata*, *sandhi shoola*, *prabhuta mutrata*, *kshudha adhikya* & *pindiko udveshtana* showing percentage relief of 76.19%, 72.94%, 67.88%, 66.66%, 64% & 62.58% respectively which were highly significant statistically with p value <0.001. *Loss of libido*, *ruchi*, *shrama shwasa* & *karapada suptata* were relieved by 33.33%, 32.07%, 30.76% & 17.24% respectively. This may be due to

*anulomana*, *balya*, *vedanasthapana*, *sho-shaka*, *ruchikara*, *shwasahara*, *rasayana* and *vrishya* effects of the trial drugs.

**D. Laboratory Profile**

**Effects on fasting blood sugar & post-prandial blood sugar-** The percentage relief in fasting blood sugar and post prandial blood sugar was found to be 51.51% & 33.80% respectively and was highly significant statistically at the level of P<0.001. This may be due to effect of the trial drugs which exhibit *Yakritautejaka* & Hypoglycemic properties.

S. No	Signs/ Symptoms	N	Mean		Diff.	% relief	± SD	± SE	T	P
			BT	AT						
1.	F.B.S	46	1.98	0.96	1.02	51.51	0.61	0.09	11.28	<0.001
1.	P.P.B.S	46	2.13	1.41	0.72	33.80	0.58	0.08	8.33	<0.001

The mean fasting blood sugar before treatment was 1.98 which after treatment came down to 0.96mg/dl, the percentage relief was 51.51% and was highly significant statistically at the level of P<0.001.

The mean post prandial blood sugar before treatment was 2.13 which after treatment came down to 1.41, the percentage relief was 33.80% and was highly significant statistically at the level of P<0.001.

**Overall effect of the Therapy:**

Sr.No.	Effect of Therapy on Patients on <i>Madhumeha</i>	No. Of Patients	Percentage
1.	Highly Improved (≥75% relief in symptoms and signs, and laboratory profile)	6	13.04%
2.	Moderately Improved (50-74.9% relief in symptoms and signs, and laboratory profile)	26	56.52%
3.	Mildly Improved (40-49.9% relief in symptoms and signs, and laboratory profile)	9	19.56%
4.	Not Improved (<40% relief in symptoms and signs, and laboratory profile)	5	10.86%

Out of forty-six patients, six patients (13.04%) showed marked improvement, twenty-six patients (56.52%) were moderately improved, nine (19.56) patients showed mild improvement. There were five patients (10.86%) who did not have any relief.

## DISCUSSION

*Madhumeha* which is a type of *Prameha* is characterized by passage of excessive quantity of urine which usually resembles honey in taste and colour. The main causative factor is *Vata* which is either vitiated directly its causative factors or by the *Avarana* of *Kapha* and *Pitta* to its path, that is why *Madhumeha* has been classified by *Acharya Vagbhata* into two categories viz. *Dhatu Kshaya-Janya* and *Avarana Janya Madhumeha*, the former type is the result of provocation of *Vata* by continuous use of factors causing *Aptarpana* and is *Asadhya*; therefore no specific treatment has been mentioned for it.

*Avarana janya Madhumeha* on the other hand is produced due to vitiation of *Kapha* and *Pitta* by factors leading to *Santarpana*, this type of *Madhumeha* is said to be *Krichha Sadhya* and is curable by extensive treatment.

### Probable mode of action:

The fundamental principle regarding treatment in *Ayurveda* is mainly based upon *Samprapti vighatana* which is achieved by relieving *Dosha Dushya Sammurchana*.

The trial drug has *Kashaya pradhana Katu Tikta Rasa, Ushna Veerya and Laghu Ruksha Guna* and performs following important functions<sup>7</sup>

### Effect on Doshas:

Main *doshas* in *madhumeha* are *Bahudrava Shleshma, Pitta* and *Avarana janya prakupitta Vata*.

- ◆ According to *Acharya Charaka, Kashaya rasa* pacifies both the *doshas*

(*Ch. Chi 26/43-6*). It also has *Shoshana* property by virtue of which *Bahudravta* of *kapha* is relieved.

- ◆ According to *Acharya Charaka, Katu rasa* pacifies *Kapha* (*Ch. Chi. 26/43-4*) which is the most important *dosha* in *Madhumeha*.
- ◆ *Tikta rasa* pacifies *Pitta* along with *Kapha* (*Ch. Chi 26/43-5*).
- ◆ The drug has *Laghu Ruksha* properties both of which again pacifies *Kapha* & *Pitta*.
- ◆ *Triphala* has *Madhura vipaka* which pacifies *vata*, whereas the remaining drugs have *Katu vipaka* which causes diminution of *kapha*.

### Effect on Dushyas:

In *Madhumeha* main *dushyas* are *Bahubadha Meda, Kleda, Maans, Vasa, Lasika, Rakta, Oja, Majja, Rasa, Shukra*<sup>8</sup>.

- ◆ According to *Acharya Dalhana, Abadhta* is due to *Aama*. *Katu rasa* has *Agni deepana* property and *Tikta rasa* is *Deepana* & *Pachana* (*Ch. Chi 26/43-4,5*). The drug is also *Ushna* in *Veerya* which again causes *Pachana* and increases *Dhatvagni*. Thus by all these *aama* is digested and *Abadhta* is relieved.
- ◆ *Kashaya Rasa* causes diminution of *Kleda* (*Ch. Chi 26/43-6*) which is an important *dushya* in *Madhumeha*.
- ◆ *Tikta rasa* has *Deepana* & *Pachana* properties.

Thus by virtue of these properties it relieves most of the *Dushyas* involved in *Madhumeha*.

### Effect on Srotrodha:-

- ◆ For *Katu rasa* pacifies *Kapha* and performs the vital function of opening blocked channels hence aids in relieving *avarana* of *vata*, the *Bastimukha* which has been blocked by *Kleda* also opens.

- ♦ *Triphala* is a **Rasayana**, it assists in maintaining overall function of the body. It pacifies *doshas*, maintains *dushyas*, relieves *mala*, opens *srotorodha*, acts as *rejuvinant* and thus promotes overall health of an individual.

**Combined Effect of *Triphala***:- Methanolic extract (75%) of *Terminalia chebula*, *Terminalia bellerica*, *Emblica officinalis* and their combination named '*Triphala*' are being used extensively in Indian system of medicine. Oral administration of the extracts (100 mg/kg body weight) reduced the blood sugar level in normal and in alloxan (120 mg/kg) diabetic rats significantly within 4 hrs. Continued, daily administration of the drug produced a sustained effect.<sup>9</sup>

### CONCLUSION

Thus on the basis of clinical trial on *Madhumeha* with *Triphaladi Kwatha*, it can be concluded that this drug was effective in relieving signs & symptoms of *Madhumeha*, and also possess significant hypoglycemic effect. No untoward effect was noted during treatment and follow up period, however, this is only a preliminary study conducted as a part of educational research program in small number of patients, in fix duration of time and further multi-centre, clinical and experimental studies are required with larger sample to establish *Madhumeha hara* effect of these drugs.

### REFERENCES

1. World health organization: diabetes mellitus report of WHO study group, Geneva World Health Organization 1985 (Tech. Report Ser. Ni. 727)
2. Type 2 Diabetes, The Indian Scenario: First edition 2000 edited by Dr. B. M. Jayaram, Micro Labs. Ltd., Bangalore
3. Charaka Samhita (1991): Commentary by Brahmananda Tripathi, reprint edi-

tion, Vol. 1,2 Chaukhamba Surbharti Prakashana, Varanasi

4. Ashtanga Samgraha by Vagbhata: Hindi Commentary by Kaviraja at-rideva Gupta, Volume 1 and 2; Indu commentary by Dr. D.V. Pandit Rao and Vaidyanath Ayodhya Pandey
5. Chakradatta by Chakrapanidatta with Padarthabodhini Hindi commentary by Vaidya Ravidatta Shastri, Reprint 2000, Chaukhambha Surbharti Prakashan, Varanasi
6. API (2004): Text Book of Medicine, Sainani, Gurmukh S. 7<sup>th</sup> Edition, Association of Physicians of India, Mumbai
7. Bhaisajya Ratnavali: Eighteen revised edition of Shri Govinda Das. (2005) edited by Shri Rajeshwardatta Shastri, Chaukhamba Sanskrit Sansthan, Varanasi
8. Charaka Samhita (1981): Text with English translation, editor translator Priyavrata Sharma, Ist edition, Chaukhamba Orientalia, Varanasi
9. Sabu MC, Kuttan R. *J Ethnopharmacol.* 2002 July

### CORRESPONDING AUTHOR

**Dr. Pallavi Bhushan**

Dept. of Rog Nidan

RGGPG Ayurvedic College,

Paprola, Himachal Pradesh, India

**Email:** docpallavibhushan@gmail.com

**Source of Support:** Nil

**Conflict of Interest:** None Declared